CLAIMS:

1. A display device (DD) comprising an adjustable light source (BL); a display panel (DP) with display pixels for modulating light originating from the light source (BL); and processing circuitry (P) coupled to the display panel (DP) and the light source (BL), the processing circuitry (P) having an input for receiving an input signal (V1) representing gray levels of pixels of an image to be displayed on the display panel (DP) and comprising:

- means for selecting (S) a dimmed brightness level of the light source (BL) in dependence on the gray levels of the image pixels, and
- means for adapting (A) the input signal (V1) in dependence on the dimmed brightness level.

2. A display device (DD) as claimed in claim 1, the means for selecting (S) being adapted to select the dimmed brightness level in dependence on a number of occurrences of a gray level corresponding to a brightness of display pixels above the dimmed brightness level and/ or a number of occurrences of a gray level corresponding to a brightness level of display pixels below a predetermined brightness level.

3. A display device (DD) as claimed in claim 2, the means for selecting (S) being adapted to substantially minimize an error function including one or more weighted numbers of occurrences formed by multiplying each of the one or more numbers of occurrences by a weighting factor.

4. A display device (DD) as claimed in claim 3, the error function being formed by an addition of the one or more weighted numbers of occurrences.

5. A display device (DD) as claimed in claim 4, the error function being substantially:

$$E_{Tol}(x_1) = \sum_{x=0}^{x_{thresd}} g(x)p(x) + \sum_{x=x_1+1}^{x_{max}} f(x)p(x),$$

wherein x is a variable representing the gray level of a pixel, $g(x)$ and $f(x)$ are weighting

functions, $p(x)$ is the number of occurrences of a pixel with the gray level x divided by the total number of pixels in the image, x_l is the gray level providing the dimmed brightness level, x_{max} is a maximum available gray level in the input signal (V1), x_{thresd} is the gray level corresponding to the predetermined brightness level.

6. A display device (DD) as claimed in claim 5, the weighting functions (f(x), g(x)) being substantially equal to one.

7. A display device (DD) as claimed in claim 5, at least one of the weighting functions (f(x), g(x)) being formed by a sum (f_{ij}) of deviations (d(k1,k2)) of gray levels between a pixel and its neighboring pixels, with k1, k2 being indices identifying the neighboring pixels.

8. A display device (DD) as claimed in claim 7, the pixel being the pixel having the highest sum (f_{ij}) of all pixels with this gray level in an image.

9. A display device (DD) as claimed in claim 5, at least one of the weighting functions (f(x), g(x)) being formed by a deviation of the gray level from a gray level corresponding to the dimmed brightness level or by a deviation from a gray level corresponding to the predetermined brightness level.

10. A display device (DD) as claimed in claim 2, the predetermined brightness level being formed by the maximum contrast ratio of the display panel (DP) and the dimmed brightness level.

11. A display device (DD) as claimed in claim 3, the input signal (V1) comprising color components (R1, G1, B1) of the image, a component error function being determined for each of the color components (R1, G1, B1), the error function being formed by adding the component error functions.

12. A display device (DD) as claimed in claim 1, the processing circuitry (P) further comprising means for determining a smoothed dimmed brightness level (Lbdim S(n)) for an image in dependence on the dimmed brightness level (Lbdim (n)) of the image and a

previous smoothed dimmed brightness level (LbdimS(n-1)) of a previous image, wherein n is a sequence number of successive images.

13. A display device (DD) as claimed in claim 12, the smoothing having a faster response time to an increasing dimmed brightness level of subsequent images than to a decreasing dimmed brightness level of subsequent images.

14. A display device (DD) as claimed in claim 1, wherein the means for selecting (S) a dimmed brightness level are further adapted to select the dimmed brightness level in dependence on a content of a part of the image.

15. A method of adjusting a light source (BL) of a display device (DD), the display device (DD) comprising a display panel (DP) with display pixels for modulating light originating from the light source (BL); and processing circuitry (P) coupled to the display panel (DP) and the light source (BL), the processing circuitry (P) having an input for receiving an input signal (V1) representing gray levels of pixels of an image to be displayed on the display panel (DP), the method comprising:

- selecting (S) a dimmed brightness level of the light source (BL) in dependence on the gray levels of the image pixels, and
- adapting (A) the input signal (V1) in dependence on the dimmed brightness level.

16. A product (PR) comprising the display device (DD) as claimed in claim 1, and signal processing circuitry (SPC) for providing the input signal (V1).

17. An integrated circuit (P) having:

- an input for receiving an input signal (V1) representing gray levels of pixels of an image to be displayed on a display panel (DP) of a display device (DD), the display device (DD) comprising an adjustable light source (BL), the display panel (DP) having display pixels for modulating light originating from the light source (BL);
- outputs for coupling to the display panel (DP) and the light source (BL);
- means for selecting (S) a dimmed brightness level of the light source (BL) in dependence on the gray levels of the image pixels; and

- means for adapting (A) the input signal (V1) in dependence on the dimmed brightness level.